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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,626	02/25/2002	Kadagattur Srinidhi	PXL-042 (6573/48)	3696

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EXAMINER	
CASCHERA, ANTONIO A	
ART UNIT	**PAPER NUMBER**
2676	

DATE MAILED: 11/25/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/084,626	SRINIDHI ET AL.	
	Examiner	Art Unit	
	Antonio A Caschera	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-8 and 11-13* is/are rejected.

7)☒ Claim(s) *4,5,9 and 10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: #18e mentioned on page 5, paragraph 22, #302x and 307x both mentioned on page 8, paragraph 30. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: #400 and 405 of Figure 5b. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 3 and 8 are objected to because of the following informalities:

   a. The phrase, "calculating a first statistical characteristic of the plurality spatial gradients," (see line 2 of claims 3 and 8) should be changed to, "calculating a first statistical characteristic of the plurality <u>of</u> spatial gradients."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 6-8 and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Mutoh et al. (U.S. Patent 6,631,210 B1).

In reference to claim 1, Mutoh et al. discloses an image processing apparatus and method for discriminating between character areas and mesh areas as well as between black and white character areas with high precision (see abstract, lines 1-2 and last 5 lines). Note, the office interprets the mesh areas of Mutoh et al. substantially similar to the content representing graphics of applicant's claim. Mutoh et al. discloses a second embodiment having an image area discrimination circuit comprised of multiple line memories (see #101c, 101m and 101y of Figure 18) as well as a color judgment circuit (see #102 of Figure 18) which receives a plurality of image data, in the form of pixel data, from the line memories (see column 29, lines 17-24 and 51-60). Mutoh et al. discloses a density difference sum calculation circuit which calculates an addition of the sum of absolute values of density level differences between pixels adjacent in the scanning direction within a specific area (see column 30, lines 32-37). Note, the office interprets the applicant's, "spatial gradients" substantially similar to the, "density differences" of Mutoh et al. Mutoh et al. also discloses calculating a density difference average (see column 30, lines 13-23) using the density differences of a specific area. Note, the office interprets the applicant's, "smoothness index" substantially similar to the, "density difference average" of Mutoh et al.

because spatial connectivity of pixels is related to the gradient of an image. Mutoh et al. discloses testing the density difference average against a threshold value to produce a control signal which is later used in determining whether a black character area or an area other than a black character area is present (see column 31, lines 20-26 and columns 31-32, lines 65-13).

In reference to claims 2 and 7, Mutoh et al. disclose all of the claim limitations as applied to claims 1 and 6 respectively. Mutoh et al. discloses calculating the density difference sums by calculating the sum of absolute values of differences between target pixels and peripheral pixels (see column 9, lines 47-50 and Figures 8a and 8b).

In reference to claims 3 and 8, Mutoh et al. disclose all of the claim limitations as applied to claims 1 and 6 respectively. Mutoh et al. discloses calculating a density difference average (see column 30, lines 13-23) obtained from the sum of density differences and the number of density-coincident pixels (of the number of pixels that have the same density value as a target pixel) (see column 9, lines 50-56). Note, the office interprets the sum of density differences substantially similar to a second statistical characteristic of density values and the number of density-coincident pixels substantially similar to a first statistical characteristic of density values. Further, the office believes Mutoh et al. inherently teaches dividing the second statistical characteristic by the first to generate a smoothness index as computing an average value (density difference average) is known in mathematics to utilize a division operation.

In reference to claim 6, claim 6 is substantially similar to claim 1 and therefore is rejected under similar rationale in addition, Mutoh et al. discloses receiving a second plurality of pixel data (pixel data for color component M) from the line memories (see column 29, lines 51-60). Mutoh et al. discloses a color feature amount extraction circuit (#121 of Figure 19) utilizing the

second plurality of pixel data, along with a first and third plurality of pixel data, to produce a minimum value calculation (see columns 29-30, lines 63-12). Mutoh et al. further discloses testing the minimum value against a threshold minimum value, the result further helps in deciding whether a black character area or an area other than a black character area is present (see column 30, lines 59-65 and columns 31-32, lines 65-13).

In reference to claim 11, Mutoh et al. discloses all of the claim limitations as applied to claim 6 above, in addition, Mutoh et al. discloses a color feature amount extraction circuit (#121 of Figure 19) utilizing the second plurality of pixel data, along with a first and third plurality of pixel data, to produce a maximum value calculation (see columns 29-30, lines 63-12).

In reference to claim 12, Mutoh et al. discloses all of the claim limitations as applied to claim 6 above, in addition, Mutoh et al. discloses receiving a third plurality of pixel data (pixel data for color component Y) from the line memories (see column 29, lines 51-60). Mutoh et al. discloses a color feature amount extraction circuit (#121 of Figure 19) utilizing the third plurality of pixel data, along with a first and second plurality of pixel data, to produce a maximum value calculation (see columns 29-30, lines 63-12). Mutoh et al. further discloses testing the maximum value against a threshold maximum value, the result further helps in deciding whether a black character area or an area other than a black character area is present (see column 31, lines 6-13 and columns 31-32, lines 65-13).

In reference to claim 13, Mutoh et al. discloses all of the claim limitations as applied to claim 12 above, in addition, Mutoh et al. discloses a color feature amount extraction circuit (#121 of Figure 19) utilizing the third plurality of pixel data, along with a first and second

plurality of pixel data, to produce a maximum value calculation (see columns 29-30, lines 63-12).

Allowable Subject Matter

5. Claims 4, 5, 9 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In reference to claims 4 and 9, the prior art of record (Mutoh et al. (U.S. Patent 6,631,210 B1), Zhu (U.S. Patent 6,195,459 B1), Otsu et al. (U.S. Patent 6,466,693 B1), Danisewicz (U.S. Patent 6,233,353 B1) and Li et al. (U.S. Patent 6,529,629 B2)) does not explicitly disclose squaring each of the spatial gradients to generate a plurality of squared gradients and generating the first statistical characteristic by summing the squared gradients.

In reference to claims 5 and 10, the prior art of record (Mutoh et al. (U.S. Patent 6,631,210 B1), Zhu (U.S. Patent 6,195,459 B1), Otsu et al. (U.S. Patent 6,466,693 B1), Danisewicz (U.S. Patent 6,233,353 B1) and Li et al. (U.S. Patent 6,529,629 B2)) does not explicitly disclose generating a plurality of absolute gradients by determining an absolute value of each of the spatial gradients, determining a sum value by summing the absolute gradients and generating the second statistical characteristic by squaring the sum value.

References Cited

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a. Zhu (U.S. Patent 6,195,459 B1)

- Zhu discloses a method and apparatus for detecting text-like portions and non-text-like portions in an image.

b. Otsu et al. (U.S. Patent 6,466,693 B1)

- Otsu et al. discloses an image processing apparatus which discriminates between character, continuous tone and screened halftone pixel areas.

c. Danisewicz (U.S. Patent 6,233,353 B1)

- Danisewicz discloses a system that identifies and discriminates between image regions that consist of text lines and image regions that largely consists of non-alphanumeric line-drawing components.

d. Li et al. (U.S. Patent 6,529,629 B2)

- Li et al. discloses a method and apparatus for classifying image data based upon target and neighboring pixel values.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Antonio Caschera whose telephone number is (703) 305-1391. The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (703)-308-6829.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

aac

11/18/03

Matthew C. Bella

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